



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,483	01/11/2002	Willys Choi	TS01-658	6707
28112	7590	11/05/2003	EXAMINER	
GEORGE O. SAILE & ASSOCIATES 28 DAVIS AVENUE POUGHKEEPSIE, NY 12603			CHACKO DAVIS, DABORAH	
			ART UNIT	PAPER NUMBER
			1756	

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/043,483

Applicant(s)

CHOI, WILLYS

Examiner

Daborah Chacko-Davis

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 January 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☒ Claim(s) 1-2, 4-9, 11-16, 18-23, and 25-30 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.                      6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-30, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, at lines 35-36, claim 5, at lines 6-7, claim 12, at lines 6-7, claim 19, at lines 6-7, and claim 26, at lines 6-7, recite "continuing said discontinuing a said application in the form of heat...". This recitation is not clear because of idiomatic errors. It is also not clear why another heat discontinuing step for a measurable duration would follow the preceding heat discontinuing step. The recitation is elucidated as "continuing said application of heat to said hot plate for a second period of time" because this step is preceded by a discontinuing step wherein the application of energy in the form of heat has been discontinued. Appropriate correction is required.

Claim 3, at lines 22-24, claim 10, at lines 17-19, claim 17, at line 19-21, and claim 24, at lines 20-22, recite, "placing said surface of said patterned and etched layer of photoresist under an angle with a horizontal direction". It is not clear how an etched layer of resist can be positioned at an angle in the horizontal direction (the horizontal direction is assumed as the horizontal direction with respect to the earth's surface). This recitation in the claims are not clear because it appears to be a literal translation into English from a foreign document

Art Unit: 1756

and are replete with grammatical and idiomatic errors. Appropriate correction is required.

Claim 3, at lines 20-21, and line 23, claim 4, at line 2, claim 7, at line 2, claim 10, at lines 15-18, claim 11, at line 2, claim 14, at line 2, claim 17, at lines 17-20, claim 18, at line 2, claim 21, at line 2, claim 24, at lines 18-21, claim 25, at line 2, and claim 28, at line 2, recite "said patterned and etched layer of photoresist". There is insufficient antecedent basis for this limitation in the claims.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 3, 10, 17, and 24, are rejected under 35 U.S.C. 102(b) as being anticipated by IBM Technical Disclosure Bulletin (NA8909149, herein referred to as IBM 149).

IBM 149, in the disclosure text, discloses a method of changing the critical dimension of vias (via in photoresist, reducing the pitch of the via) comprising providing a substrate with a semiconductor device (wiring, see figures 4, and 5) on the surface of the substrate, and a patterned and etched semiconducting layer on the wiring (passivation layer, see figures 4, and 5), forming a patterned and developed layer of photoresist (resist layer) (see figure 2), on the semiconducting

Art Unit: 1756

layer (passivation layer), wherein the sidewalls of the via (interconnect line trench or opening) intersect the semiconductor layer at an angle (see figure 3), and changing the angle of intersect of the sidewall of the via by heating the layer (eliminating the shift in the via resulting in a decrease in the critical dimension of the via) such that the slopes of the sidewall are minimal with respect to the semiconducting layer (claims 3, 10, 17, and 24).

***Allowable Subject Matter***

5. Claims 1-2, would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

6. Claims 4-9, 11-16, 18-23, and 25-30, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

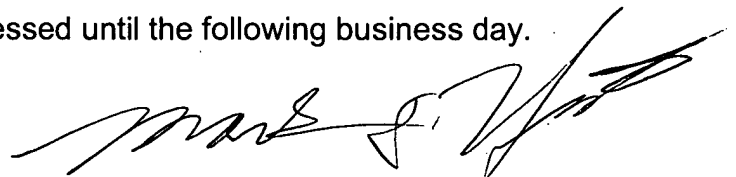
***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (703) 306-5923. If the examiner is unavailable, you may contact her supervisor, Mark F. Huff at (703) 308-2464. FAX communications should be sent to the official Right FAX number (703) 872-9306 for all responses. FAXES received after 4:00 P.M. will not be processed until the following business day.

dcd



October 29, 2003.



MARK F. HUFF  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700